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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,014	04/17/2007	Wenjie Wang	20016.0003USWO	4113
52835 7590 06/11/2010 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902				
EXAMINER				
NGUYEN, DUC M				
ART UNIT		PAPER NUMBER		
2618				
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06/11/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,014

Applicant(s)

WANG ET AL.

Examiner

DUC M. NGUYEN

Art Unit

2618

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12, 13 and 16 is/are rejected.
- 7) ☒ Claim(s) 14, 15 and 17-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

This action is in response to applicant's response filed on 3/15/10. Claims 1-22 are now pending in the present application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims **16-18** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. The claims are an omnibus type claim.

The claims recite the "dichotomy" terminology. However, it is unclear what are the "**two parts**" that this "dichotomy method" referring to (not clearly explained in the specification). Accordingly, the claims are indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by **Rexberg et al** (US 2001/0016505).

Regarding claim 12, **Rexberg** discloses a calibration method of array antenna transmission links for array antenna, comprising:

first, obtaining initial values of gain calibration weight and phase calibration weight of a transmission link (Fig. 6, pre-transmit calibration, [0025, 0034, 0042]); then

calculating the gain calibration weight and the phase calibration weight of the transmission link (Fig. 6, pre-transmit calibration, [0026, 0034, 0042]); and

calibrating the gain and phase of array transmission link using a calculated calibration weight (Fig. 6, transmit calibration, [0027, 0035, 0042]), where the amplitude difference would represent the amount of gain to be increased or decreased.

4. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by **Anderson et al** (US 6,157,343).

Regarding claim 12, **Anderson** discloses a calibration method of array antenna transmission links for array antenna, comprising:

first, obtaining initial values of gain calibration weight and phase calibration weight of a transmission link (Fig. 5, refs. 501-504 and col. 4, lines 20-24, col. 6, lines 47-56. Or col. 10, lines 18-24); then

calculating the gain calibration weight and the phase calibration weight of the transmission link (Fig. 5, refs. 505-507 and col. 4, lines 25-34, col. 6, lines 47-56. Or col. 10, lines 25-34); and

calibrating the gain and phase of array transmission link using a calculated calibration weight (Fig. 5, ref. 508 and col. 4, lines 35-43, col. 6, lines 47-56. Or col. 10, lines 35-53), where the amplitude difference would represent the amount of gain to be increased or decreased.

5. Claim **12** is rejected under 35 U.S.C. 102(e) as being anticipated by **Fudaba** (US **2005/0239419**).

Regarding claim **12**, **Fudaba** discloses a calibration method of array antenna transmission links, comprising:

first, obtaining initial ($i=1$) values of gain calibration weight and phase calibration weight of a transmission link (see Fig. 3, S12-S16 for $i=1$, [0036, 0045]); then

calculating the gain calibration weight and the phase calibration weight of the transmission link (Fig. 3, S15-S16 for $i>1$, [0036, 0045]); and

calibrating the gain and phase of array transmission link using a calculated calibration weight ((Fig. 3, S12-S18 for $i>1$, [0036, 0045])), where the amplitude difference would represent the amount of gain to be increased or decreased.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims **13, 16** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Fudaba** in view of **Azuma** (US **6,806,844**).

Regarding claim **13**, **Fudaba** discloses the calibration method according to claim 12, wherein the step to get the initial values of gain calibration weight and phase calibration weight of transmission link, further comprises:

control the base band signal and make the base station only having one channel sending signal (see Fig. 3, S12 for $i=1$, [0036]);

adjust the gain calibration weight for this link, and make the transmitting power of this link reaches a rated (constant or fixed) value (see Fig. 3, S15, [0036] regarding minimizing power of error signal); then the gain calibration weight at this time is the initial value of the gain calibration weight for this link (see Fig. 3, S16 for $i=1$);

perform the above operation for all of the transmission links in the base station, to get the initial value of gain calibration weight for each transmission link (see Fig. 3, S12-S18 for $i > 1$).

Here, although **Fudaba** is silent a fixed (rated) power for the reference signal, one skilled in art would recognize that such reference signal that is used for calibration would obviously be fixed at a desired power in the similar way as disclosed by Azuma (see col. 5, lines 15-16). Therefore, by minimizing the power of the error signal, the power of the feedback signal would reach the fixed (rated) power for the reference signal when amplitude/phase of the calibration value is correctly calibrated.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Fudaba for utilizing a fixed power for the baseband reference signal, so that sensitivity deterioration due to the calibration reference signal can be prevented (Azuma, 25-30).

Regarding claim **16**, the claim is rejected for the same reason as set forth in claim 13 above, where **Fudaba** as modified would teach take a rated (fixed) transmission power as the base power value for the calibration (see **Azuma**, col. 5, lines 15-16). In addition, turning on branches 1 to i and turning off branches $i+1$ to N would provide the use of a "dichotomy" method as claimed (see Fudaba, Fig. 3, S12), and when the power of error signal is minimized (i.e. near zero), the transmission power of each transmission link ($i=1$ to N) would all meet a requested transmission power.

Allowable Subject Matter

8. Claims 1-11 are allowed.
9. Claims 14-15, 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. Claims 17-18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

As to claim 12, the indicated allowability of claim 12 is withdrawn in view of the newly discovered reference(s) as cited above in the rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See the attached PTO-892.

13. **Any response to this action should be mailed to:**

Commissioner of Patents

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window,
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893,
Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Maung (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

June 9, 2010